

SURVEY OF PUBLIC ATTITUDES ABOUT WATER ISSUES IN THE PACIFIC NORTHWEST

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OBJECTIVES

- 1. Design and conduct a region-wide survey to document:**
 - public awareness**
 - aptitudes**
 - attitudes, and**
 - actions toward water quality and the environment**
- 2. Set baseline data — to compare successes of future programs**

THE REGION

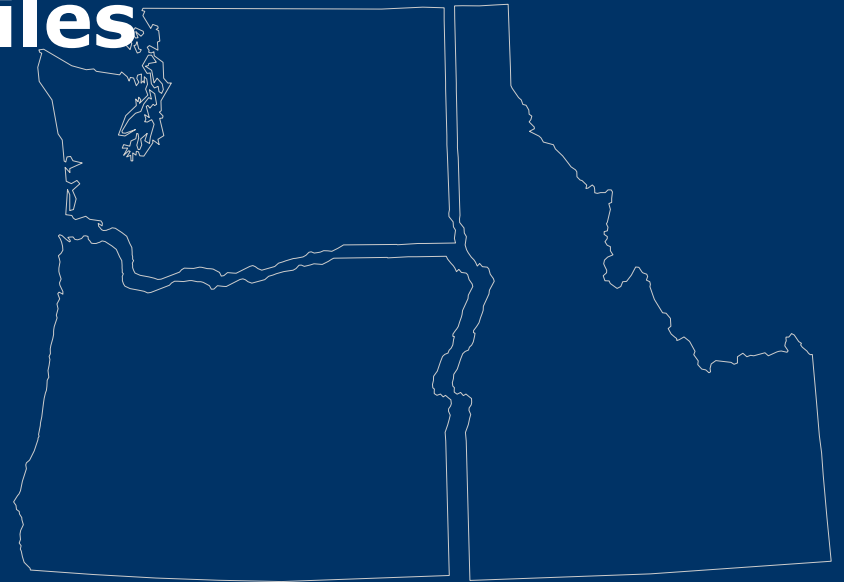
AK — ID — OR — WA

AREA:

- 920,600 square miles
- 26 percent of USA

POPULATION

- 11,400,000
- 4 percent of USA



SURVEY DEVELOPMENT

- **50 question survey**
- **Dillman survey approach was used**
 - **4 percent difference = significant**
- **12 stage question development process**

SURVEY SAMPLE SIZE

- **Base of 200 people per state (200 x 4)
= 800 surveys**
- **Additional 25 people per each 250,000
people per state above 500,000**

AK – 625,000 = 1 x 25 = 25

ID – 1,250,000 = 3 x 25 = 75

OR – 3,500,000 = 12 x 25 = 300

WA – 5,900,000 = 22 x 25 = 550

SURVEY SAMPLE SIZE

- Minimum sample size:

AK 200 + 25 = 225

ID 200 + 75 = 275

OR 200 + 300 = 500

WA 200 + 550 = 750

= 1,750

surveys mailed

SURVEY PROCESS

STAGE 1:

- **1,780 surveys mailed January 7, 2002**
- **Mailed: survey, letter, business reply envelope**
- **384 surveys returned completed**

SURVEY PROCESS

STAGE 2:

- **February 5, 2002**
- **Post card mailed to each address not responding to January 7 mailing**
- **239 more surveys returned completed**
- **Total return — 623 surveys**
stage 1 — 384 + stage 2 — 239

SURVEY PROCESS

STAGE 3:

- **March 4, 2002**
- **All non-respondents mailed:**
 - **survey**
 - **urgent letter**
 - **business reply envelope**
- **305 more surveys completed**
- **928 total surveys — goal reached**

SURVEY DATA

State	Completed	Sample Size	Return Rate
AK	120	232	51.7%
ID	160	278	57.6%
OR	256	506	50.6%
WA	392	758	51.7%
TOTAL	928	1,774	52.3%

DEMOGRAPHIC INFORMATION

- State
 - Community size
 - Time of residence in PNW
 - Gender
 - Age
 - Education
 - Occupation
- Sample size allows for statistical analysis

DATA HANDLING / ANALYSIS

- **Data coded into Excel spreadsheet**
 - **14,000 pieces of data**
- **Data analyzed by SAS/SPSS**
 - **Chi-square values determined for interactions**
- **Main effects and simple interactions evaluated**

RESULTS

- **RESPONSES TO 14 QUESTIONS WILL BE EVALUATED IN THIS TALK**
- **RESULTS REVEALED MANY INTERESTING THINGS**
- **STATE OF RESIDENCE AND GENDER WERE THE DEMOGRAPHICS MOST OFTEN SIGNIFICANT**

QUESTION 1 (42)

**How do you see yourself on
environmental issues
compared to the average
American adult?**

HOW DO YOU SEE YOURSELF?

FOR TOTAL
NATURAL
RESOURCE
USE

EQUAL
BALANCE

FOR TOTAL
ENVIRON-
MENTAL
PROTECTION



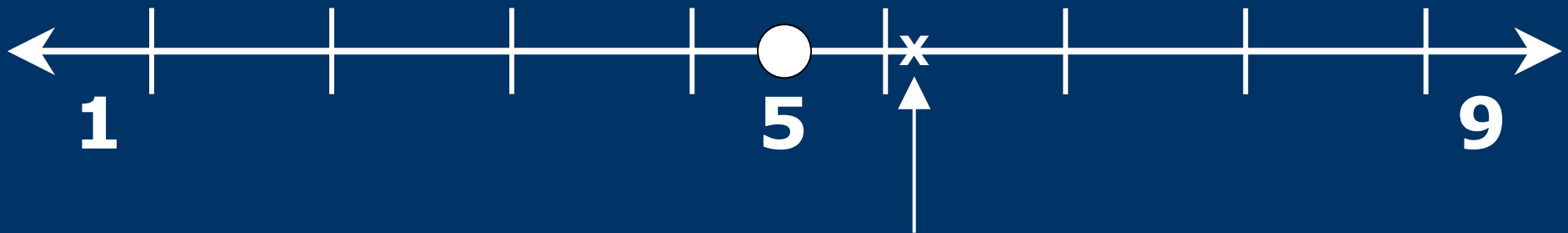
Place an X on the line

HOW DO YOU SEE YOURSELF?

FOR TOTAL
NATURAL
RESOURCE
USE

FOR TOTAL
ENVIRON-
MENTAL
PROTECTION

EQUAL
BALANCE



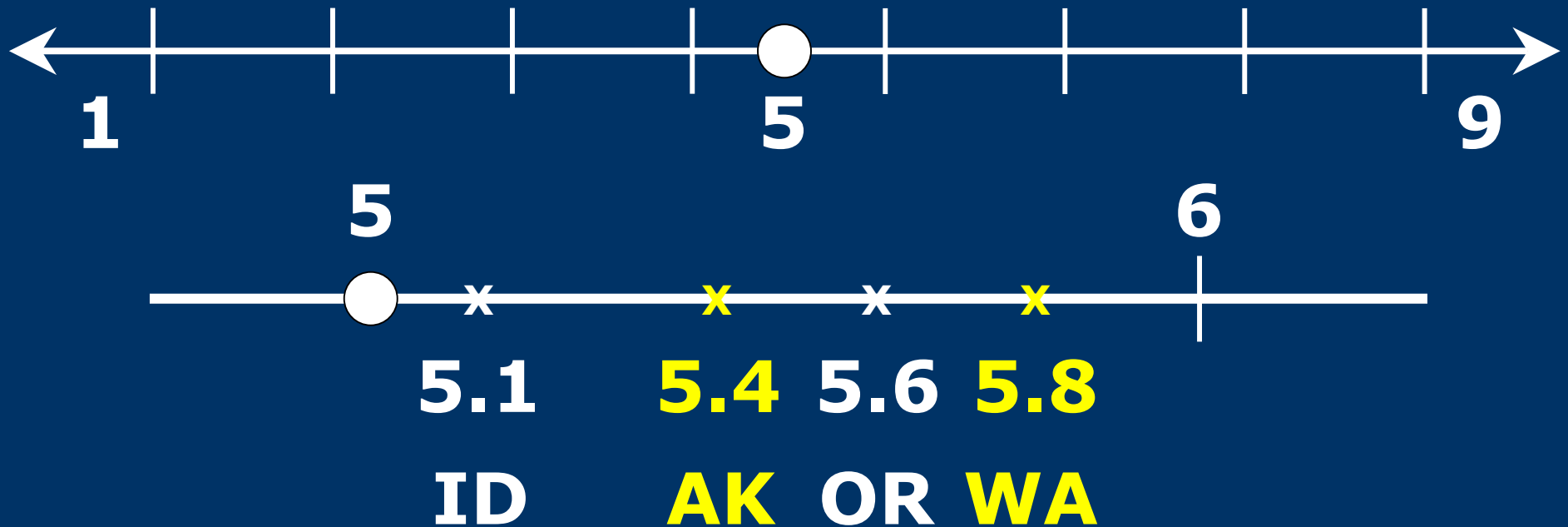
5.6 (AVERAGE)

HOW DO YOU SEE YOURSELF? — STATE

FOR TOTAL
NATURAL
RESOURCE
USE

EQUAL
BALANCE

FOR TOTAL
ENVIRON-
MENTAL
PROTECTION



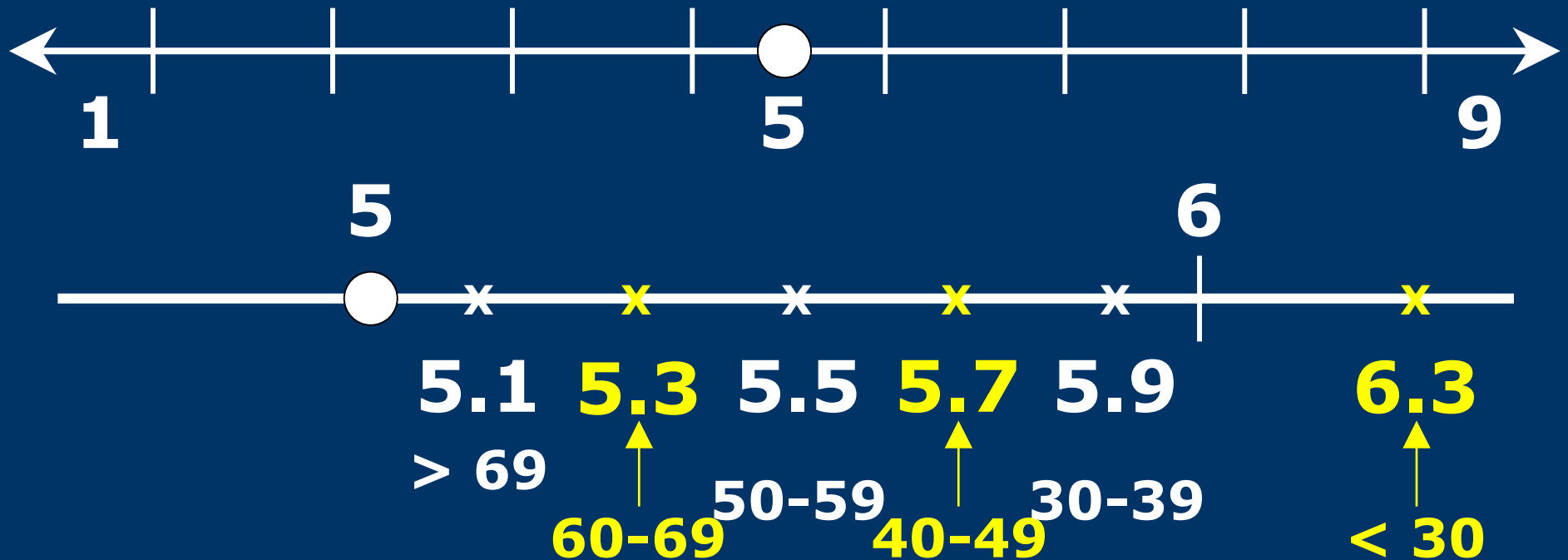
Likelihood Ratio Chi-Square = 0.0053

HOW DO YOU SEE YOURSELF? — AGE

FOR TOTAL
NATURAL
RESOURCE
USE

EQUAL
BALANCE

FOR TOTAL
ENVIRON-
MENTAL
PROTECTION



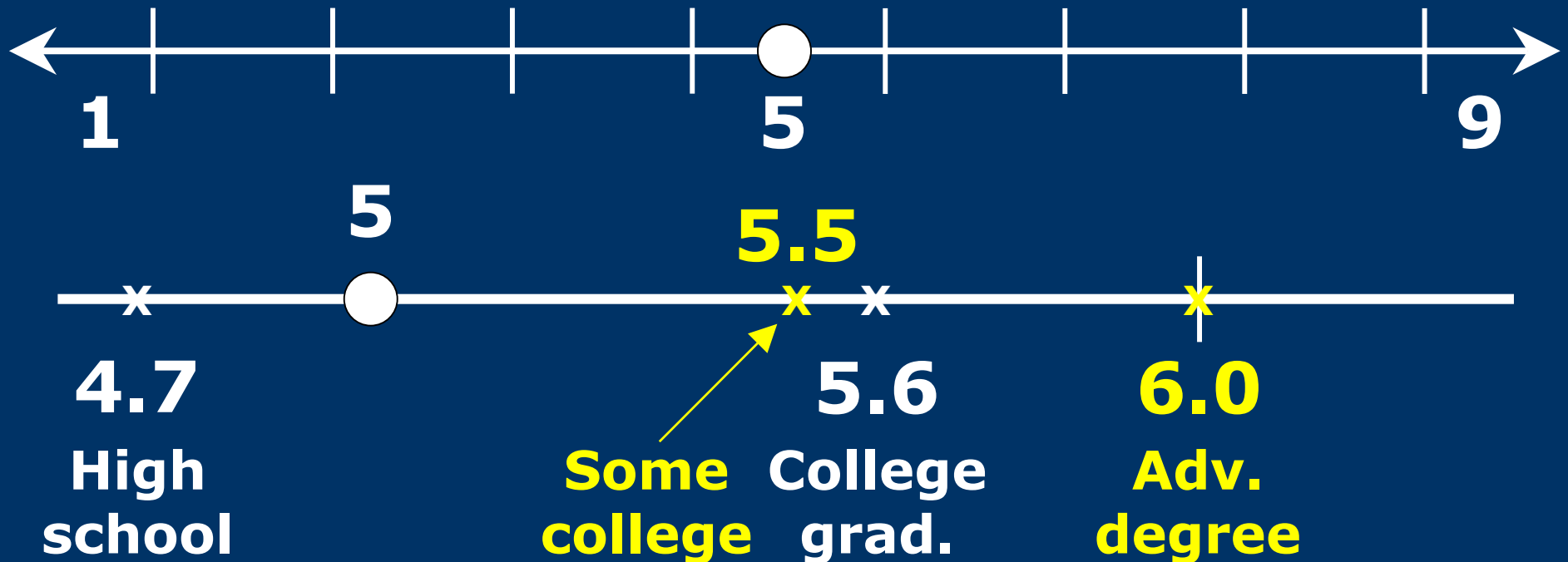
Likelihood Ratio Chi-Square = < 0.0001

HOW DO YOU SEE YOURSELF? — EDUCATION

FOR TOTAL
NATURAL
RESOURCE
USE

EQUAL
BALANCE

FOR TOTAL
ENVIRON-
MENTAL
PROTECTION



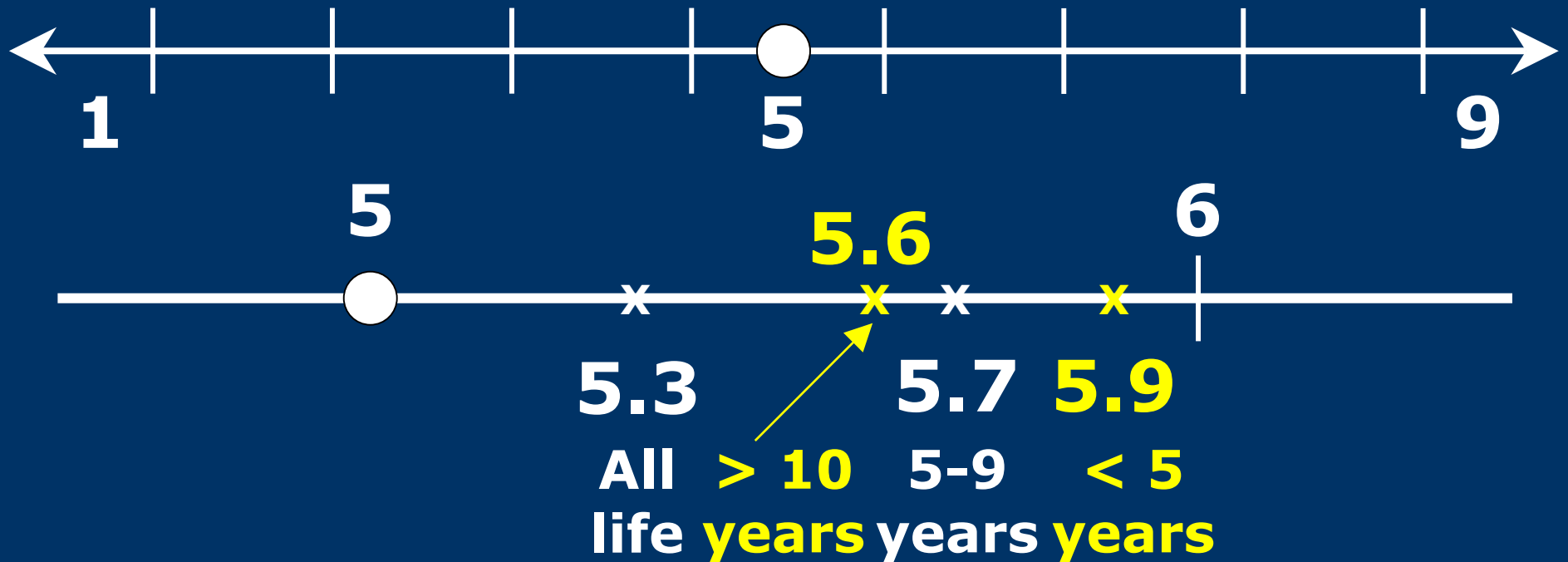
Likelihood Ratio Chi-Square = < 0.0001

HOW DO YOU SEE YOURSELF? — TIME IN PNW

FOR TOTAL
NATURAL
RESOURCE
USE

EQUAL
BALANCE

FOR TOTAL
ENVIRON-
MENTAL
PROTECTION



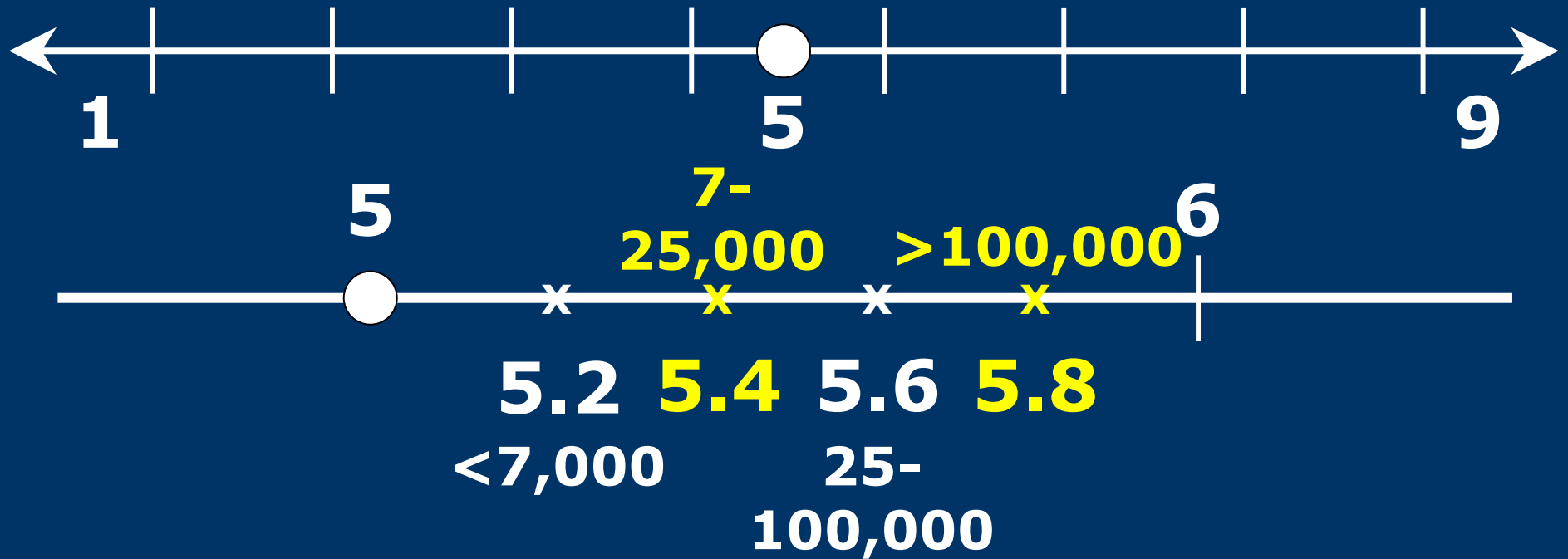
Likelihood Ratio Chi-Square = 0.0011

HOW DO YOU SEE YOUR-SELF? — COMMUNITY SIZE

FOR TOTAL
NATURAL
RESOURCE
USE

EQUAL
BALANCE

FOR TOTAL
ENVIRON-
MENTAL
PROTECTION



Likelihood Ratio Chi-Square = 0.0178

QUESTION 2

**In your opinion, what is the
quality of surface waters
(rivers, streams, lakes)
where you live?**

GRADING SURFACE WATER QUALITY

QUALITY	PERCENT
GOOD OR EXCELLENT	22.3
GOOD AND IMPROVING	24.2
GOOD, BUT DETERIORATING	19.1
FAIR	19.2
POOR, BUT IMPROVING	3.9
POOR	5.0
NO OPINION	6.3

Grading Surface Water Quality— BY GENDER

QUALITY	FEMALE	MALE
	----- % -----	
GOOD +	38	50
GOOD -	20	19
FAIR	23	18
POOR	10	8
NO OPINION	9	5

Likelihood Ratio Chi-Square = 0.0221

Grading Surface Water Quality — BY STATE

QUALITY	AK	ID	OR	WA
	----- % -----			
GOOD +	74	43	37	46
GOOD -	13	23	18	20
FAIR	10	22	23	19
POOR	1	8	17	7
NO OPINION	2	4	6	8

Likelihood Ratio Chi-Square = < 0.0001

Grading Surface Water Quality — BY AGE

QUALITY	< 40	40 – 59	> 59
	----- % -----		
GOOD +	37	50	51
GOOD -	17	20	18
FAIR	27	16	17
POOR	11	9	6
NO OPINION	8	5	8

Likelihood Ratio Chi-Square = 0.0008

Grading Surface Water Quality — BY COMMUNITY SIZE

QUALITY	<u>POPULATION IN 1,000s</u>				
	100+	25-100	7-25	3.5-7	< 3.5
	----- % -----				
GOOD +	40	44	51	54	56
GOOD -	23	19	23	12	9
FAIR	20	19	18	21	21
POOR	12	11	5	4	7
NO OPINION	5	7	3	9	7

Likelihood Ratio Chi-Square = 0.0034

QUESTION 3

**In your opinion, what is the
quality of ground water
(sources of well water)
in your area?**

GRADING GROUND WATER QUALITY

QUALITY	PERCENT
GOOD OR EXCELLENT	26.0
GOOD AND IMPROVING	11.9
GOOD, BUT DETERIORATING	18.8
FAIR	16.0
POOR, BUT IMPROVING	0.9
POOR	3.0
NO OPINION	23.4

Grading Ground Water Quality — BY GENDER

QUALITY	FEMALE	MALE
	----- % -----	
GOOD +	30	43
GOOD -	19	19
FAIR	17	15
POOR	5	3
NO OPINION	29	20

Likelihood Ratio Chi-Square = 0.0056

Grading Ground Water Quality — BY AGE

QUALITY	< 40	40 – 59	> 59
	----- % -----		
GOOD +	26	40	46
GOOD -	16	23	15
FAIR	23	15	11
POOR	4	4	3
NO OPINION	31	18	25

Likelihood Ratio Chi-Square = < 0.0001

Grading Ground Water Quality — BY COMMUNITY SIZE

QUALITY	<u>POPULATION IN 1,000s</u>				
	100+	25-100	7-25	3.5-7	< 3.5
	----- % -----				
GOOD +	28	37	41	51	52
GOOD -	25	17	21	9	12
FAIR	14	17	18	12	16
POOR	4	4	3	5	5
NO OPINION	29	25	17	23	15

Likelihood Ratio Chi-Square = 0.0012

Grading Ground Water Quality — BY STATE

QUALITY	AK	ID	OR	WA
	----- % -----			
GOOD +	51	40	32	36
GOOD -	16	29	17	16
FAIR	17	15	19	15
POOR	5	5	5	3
NO OPINION	11	11	27	30

Likelihood Ratio Chi-Square = < 0.0001

QUESTION 4

In your opinion, does the environment receive the right amount of emphasis from government and elected officials in your state?

DOES THE GOVERNMENT EMPHASIZE THE ENVIRONMENT ENOUGH?

EMPHASIS	PERCENT
NO, too much	19.0
NO, not enough	35.2
YES	33.4
Don't know	12.4

Does Government Emphasize the Environment Enough? — BY STATE

EMPHASIS	AK	ID	OR	WA
	----- % -----			
NO, too much	17	19	20	17
NO, not enough	26	31	38	39
YES	53	35	30	30
Don't know	4	15	12	13

Likelihood Ratio Chi-Square = 0.0005

Does Government Emphasize the Environment Enough? — BY GENDER

EMPHASIS	FEMALE	MALE
	----- % -----	
NO, too much	15	21
NO, not enough	43	31
YES	29	37
Don't know	13	11

Likelihood Ratio Chi-Square = 0.0009

Does Government Emphasize the Environment Enough? — BY EDUCATION LEVEL

EMPHASIS	<u>EDUCATION LEVEL</u>			
	High school	Some college	College grad.	Adv. degree
	----- % -----			
NO, too much	20	18	21	14
NO, not enough	24	33	37	47
YES	29	35	35	33
Don't know	27	14	8	6

Likelihood Ratio Chi-Square = <0.0001

Does Government Emphasize the Environment Enough? — BY TIME OF RESIDENCE

EMPHASIS	<u>TIME IN PACIFIC NW (years)</u>			
	All life	> 10	5-9	< 5
	----- % -----			
NO, too much	23	18	14	4
NO, not enough	29	38	40	50
YES	36	32	29	36
Don't know	12	12	17	10

Likelihood Ratio Chi-Square = 0.0036

Does Government Emphasize the Environment Enough? — BY COMMUNITY SIZE

EMPHASIS	>100,000	25- 100,000	7-25,000	<7,000
	----- % -----			
NO, too much	15	15	19	27
NO, not enough	39	37	38	27
YES	34	36	36	30
Don't know	12	12	7	16

Likelihood Ratio Chi-Square = 0.0324

QUESTION 5

How important are each of the following issues to you?

- **Clean rivers**
- **Clean groundwater**
- **Clean drinking water**
- **H₂O for economic development**
- **Salmon**
- **Wetlands**
- **Recreation**
- **Watershed restoration**
- **Power generation**
- **Agriculture**

IMPORTANCE OF CLEAN RIVERS

IMPORTANCE

PERCENT

EXTREME

44.5

VERY

49.3

SOMEWHAT

5.5

NOT

0.2

NO OPINION

0.5

VERY/EXTREMELY IMPORTANT ISSUES

ISSUE	PERCENT
CLEAN DRINKING WATER	98.9
CLEAN RIVERS	93.8
CLEAN GROUND WATER	93.3
WATER FOR AGRICULTURE	83.9
WATER FOR POWER	72.3

VERY/EXTREMELY IMPORTANT ISSUES

ISSUE	PERCENT
ECONOMIC DEVELOPMENT	70.0
WETLANDS	68.9
SALMON	68.7
WATERSHED RESTORATION	68.1
RECREATION	58.0

ISSUES: Very or Extremely Important — THE GENDER GAP

ISSUE	FEMALE	MALE
	----- % -----	
Groundwater	96	92
Salmon	72	67
Wetlands	78	65
Watershed Restor.	71	67
Power Generation	76	70
Agriculture	87	82

ISSUES: Very or Extremely Important — THE AGE GAP

ISSUE	AGE (years)		
	< 50	50 – 69	> 69
	----- % -----		
Groundwater	93	94	90
Wetlands	74	67	55
Power Generation	67	75	82

ISSUES: Very or Extremely Important — LENGTH OF RESIDENCE

TIME IN PNW (years)

ISSUE

ALL

> 10

5-9

< 5

----- % -----

**Economic
Development**

74

69

57

72

Salmon

60

72

75

89

Wetlands

64

72

73

83

QUESTION 6

In your opinion, which of the following are most responsible for the existing pollution problems in rivers and lakes in your state?

Circle 3 choices

POLLUTION SOURCE CHOICES (3)

- **Forestry**
- **AG – crops**
- **AG – animals**
- **Erosion from roads**
- **Wastes from urban areas**
- **Mining**
- **Industry**
- **Military bases**
- **Rangeland management**

MOST RESPONSIBLE FOR POLLUTION – 3 CHOICES

ALASKA		IDAHO	
ACTIVITY	%	ACTIVITY	%
Urban wastes	42	Ag-animals	43
Road erosion	36	Urban wastes	43
Mining	31	Ag-crops	31
Military bases	23	Mining	27
Industry	21	Industry	26

MOST RESPONSIBLE FOR POLLUTION – 3 CHOICES

OREGON		WASHINGTON	
ACTIVITY	%	ACTIVITY	%
Urban wastes	57	Urban wastes	56
Industry	46	Industry	42
Ag-crops	31	Road erosion	39
Forestry	30	Forestry	28
Ag-animals	26	Ag-animals	27

QUESTION 7

In my opinion, my state currently spends less money on environmental protection including water quality than it should.

THE STATE SPENDS LESS ON ENVIRONMENTAL PROTECTION THAN IT SHOULD

STATE	AGREE	NEUTRAL	DISAGREE
	----- % -----		
ALASKA	28	22	50
IDAHO	39	34	27
OREGON	36	35	29
WASHINGTON	36	38	26

Likelihood Ratio Chi-Square = 0.0017

THE STATE SPENDS LESS ON ENVIRONMENTAL PROTECTION THAN IT SHOULD

EDUCATION LEVEL	AGREE	NEUTRAL	DISAGREE
	----- % -----		
SOME H.S.	20	45	32
H.S. GRADUATE	25	37	38
SOME COLLEGE	33	39	28
COLLEGE GRAD.	35	33	32
GRAD. DEGREE	49	27	24

Likelihood Ratio Chi-Square = 0.0067

THE STATE SPENDS LESS ON ENVIRONMENTAL PROTECTION THAN IT SHOULD

COMMUNITY SIZE	AGREE	NEUTRAL	DISAGREE
	----- % -----		
> 100,000	42	29	29
25 – 100,000	35	40	25
7 – 25,000	33	34	33
3,500 – 7,000	31	33	36
< 3,500	27	34	39

Likelihood Ratio Chi-Square = 0.0010

QUESTION 8

**I would be willing to see the price
of my electricity bill double if it
would help save salmon
from extinction.**

I AM WILLING TO PAY MORE . . . — FOR ELECTRICITY TO SAVE SALMON

AGE	AGREE	NEUTRAL	DISAGREE
	----- % -----		
< 40	28	7	65
40 – 69	18	7	75
> 69	13	18	69

Likelihood Ratio Chi-Square = 0.0021

I AM WILLING TO PAY MORE . . . — FOR ELECTRICITY TO SAVE SALMON

EDUCATION LEVEL	AGREE	NEUTRAL	DISAGREE
	----- % -----		
HIGH SCHOOL	9	12	79
SOME COLLEGE	15	8	77
COLLEGE GRAD.	23	9	68
GRAD. DEGREE	29	8	62

Likelihood Ratio Chi-Square = 0.0001

QUESTION 9

**I would be willing to see my state
or local taxes increase by up to
10 percent to improve water quality
in my state.**

I AM WILLING TO PAY MORE . . . — TAXES TO IMPROVE WATER QUALITY

EDUCATION LEVEL	AGREE	NEUTRAL	DISAGREE
	----- % -----		
SOME H.S.	10	23	67
H.S. GRADUATE	25	18	57
SOME COLLEGE	35	12	53
COLLEGE GRAD.	46	10	44
GRAD. DEGREE	53	9	38

Likelihood Ratio Chi-Square = < 0.0001

QUESTION 10

Do you know what a watershed is?

☐ **YES**

☐ **NO**

If you answered “YES” please indicate the watershed you live in:

WATERSHED I.Q.

KNOWLEDGE	PERCENT
YES	68
NO	32

Gender**

↑ **male**

Age**

↓ **< 40**

Education*

↑ **more education**

QUESTION 11

**Have you received water quality
information from the
following sources?**

WATER QUALITY INFORMATION SOURCES

SOURCE	% receiving information
Newspapers	68
Television	59
Environmental agencies	51
Environmental groups	46
Extension	28
Universities	25
Schools	20

Water Quality Information Sources — BY AGE

SOURCE	AGE (years)					
	<30	30-39	40-49	50-59	60-69	>69
	----- % -----					
Television	62	50	55	55	70	69
Newspapers	61	56	68	68	79	80
Extension	16	14	30	32	39	32
Env. agencies	43	41	56	49	55	60

Water Quality Information Sources — BY STATE

SOURCE	AK	ID	OR	WA
	----- % -----			
Extension	38	28	30	24
Environmental agencies	64	42	49	51
Environmental groups	44	33	52	47

Water Quality Information Sources — BY COMMUNITY SIZE

SOURCE	COMMUNITY SIZE			
	>100,000	25- 100,000	7-25,000	<7,000
	----- % -----			
Newspapers	69	70	74	57
Extension	25	23	29	42

QUESTION 12

Have you or someone in your household done any of the following as part of an individual or community effort to conserve water or preserve water quality?

CONSERVATION / PRESERVATION EFFORTS

EFFORTS	PERCENT CHECKING YES
Water-saving appliance	78
Chemical disposal	69
Water use	68
Motor oil	62
Yard – H₂O/Chemicals	60
Car washing	43

Conservation / Preservation Efforts — BY TIME OF RESIDENCE

TIME IN PACIFIC NW (years)

EFFORT	All life	> 10	5-9	< 5
	----- % -----			
Water Use	62	71	74	78

Likelihood Ratio Chi-Square = 0.0203

Conservation / Preservation Efforts — BY EDUCATION LEVEL

ACTIVITY	<u>EDUCATION LEVEL</u>			
	High school	Some College	College Grad.	Adv. Degree
	----- % -----			
Chemical disposal	64	69	68	77

Likelihood Ratio Chi-Square = 0.0280

QUESTION 13

**Have you ever changed your
mind about an environmental
issue as a result of:**

CHANGED MIND DUE TO . . .

PARAMETER	Changed mind, %
Observation	75
Conversations	59
News coverage	49
Classes/presentations	38
Financial consideration	38
Attending public meetings	27
Speech by elected official	11

QUESTION 14

Have you or others in your household ever participated in an environmental related activity such as a class, workshop, or volunteer work activity?

PARTICIPATION IN ENVIRONMENTAL ACTIVITIES

ACTIVITY	PERCENT
YES, often	5
YES, more than once	28
YES, once	14
I'M NOT SURE	8
NO, never	44

Participation in Environmental Activities — BY AGE

ACTIVITY	AGE (years)			
	< 39	40-59	60-69	> 69
	----- % -----			
YES, more than once	33	38	35	15
YES, once	17	16	10	7
NO	50	46	55	58

Likelihood Ratio Chi-Square = < 0.0001

Participation in Environmental Activities — BY TIME OF RESIDENCE

ACTIVITY	<u>TIME IN PACIFIC NW (years)</u>			
	All life	> 10	5-9	< 5
	----- % -----			
YES, more than once	28	37	37	32
YES, once	14	12	22	20
NO	58	51	41	48

Likelihood Ratio Chi-Square = 0.0355

Participation in Environmental Activities — BY EDUCATION LEVEL

ACTIVITY	<u>EDUCATION LEVEL</u>			
	High school	Some College	College Grad.	Adv. Degree
	----- % -----			
YES, more than once	14	29	36	49
YES, once	10	13	16	15
NO	76	58	48	36

Likelihood Ratio Chi-Square = < 0.0001

SUMMARY

- **Three reports will be written based on data collected in this survey**
 - **Delivery methods required to get water quality information out to the public**

SUMMARY

- Public attitudes about water-related issues in the Pacific Northwest**
- Public aptitudes about water-related issues in the Pacific Northwest**